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Proteases.—VINES,²³ in continuing his work on the proteolytic enzymes of plants, finds that both malt extract and taka-diastrase (Parke Davis and Co.) contain enzymes capable of digesting fibrin and of splitting peptone. From malt extract he has isolated the peptone-splitting enzyme free from the fibrin-digesting body, and from taka-diastrase he separated each from the other. Both these enzymes seem to act best in acid media. In animal tissues there are two fibrin-splitting enzymes: α protease, weak and acting in basic media; and β protease, more powerful and acting in acid media. By special methods of preparation, VINES obtained a protease which acted best in neutral and basic media. This perhaps corresponds to the α protease of animal tissues. The ereptases, peptone-splitting enzymes, of animal tissues act best in basic media. VINES'S work shows that plant ereptases act in acid media. As to terminology, one is inclined to believe that VINES could adopt profitably that of animal workers as given by VERNON.²⁴—WILLIAM CROCKER.

A new genus of Cordaitales.—SCOTT and MASLEN²⁵ have described a new genus (*Mesoxylon*) of Cordaitales from the calcareous nodules of the Lower Coal-measures of Lancashire. It is intermediate between *Poroxylon* and *Cordaïtes*, as its name implies, including five species which have been referred heretofore to these two genera. The combination of characters is the anatomical habit of *Cordaïtes* and the centripetal xylem of *Poroxylon*. The pith is relatively large and discoid (as in *Cordaïtes*); the wood is dense, with narrow pith rays and relatively small tracheids; the leaf traces are double, but divide before entering the leaf; the centripetal xylem is present in the leaf traces at the margin of the pith (as in *Poroxylon*) and throughout their course to the leaves. The genus is thought "to completely bridge the gap, so far as anatomy is concerned, between the Poroxyleae and the Cordaïteae," and helps to connect the cordaïtean and later forms (excepting cycadophytes) with the "pteridosperms."—J. M. C.

"Bars of Sanio" in Coniferales.—The "bars of Sanio" are "folds" of cellulose to be observed in the walls of tracheids as horizontal or more or less semicircular markings, which stand out clearly with proper staining. Miss GERRY²⁶ has investigated their distribution among the Coniferales, and has discovered that they furnish a constant and useful character in the determination of fossil woods. They were found in 35 of the living genera, but do not occur in *Agathis* and *Araucaria*, nor in the mesozoic araucarians. Since they do occur in the podocarps, it is estimated that this group is more closely related to the Abietineae than to the Araucarineae, a conclusion which contradicts a growing conviction based

²³ VINES, S. H., Proteases of plants. *Annals of Botany* **24**:213-222. 1910.

²⁴ VERNON, H. M., Intracellular enzymes. London: John Murray. 1908.

²⁵ SCOTT, D. H., and MASLEN, A. J., On *Mesoxylon*, a new genus of Cordaitales (preliminary note). *Annals of Botany* **24**:236-239. 1910.

²⁶ GERRY, ELOISE, The distribution of the "bars of Sanio" in the Coniferales. *Annals of Botany* **24**:119-124. *pl.* 13. 1910.

on other characters. It is an interesting fact that the ancient *Prepinus* shows these "bars," which fact helps to establish their ancient character. The total result is to emphasize strongly the distinctness of the araucarians from all the other Coniferales.—J. M. C.

Embryo sacs of some Onagraceae.—An investigation²⁷ of *Epilobium angustifolium*, *E. Dodonaei*, *Oenothera biennis*, and *Circaea lutetiana* shows an interesting variation from the conventional development of the embryo sac. The usual tetrad of four megaspores is formed and the lowest one enlarges and begins to develop in the well-known way, but as soon as the four-nucleate stage is reached, two synergids and an egg are formed at the micropylar end of the sac, leaving one free nucleus in the middle or toward the antipodal end. This sac looks like that of *Cypripedium*, as described by Miss PACE,²⁸ but is formed from one megaspore, while that of *Cypripedium* is formed from two. At fertilization, one male nucleus fuses with the nucleus of the egg and the other with the single polar nucleus, so that there is no triple fusion as in *Cypripedium*, where one of the synergids takes part. The embryo and endosperm develop in the usual way.—CHARLES J. CHAMBERLAIN.

The original *Oenothera Lamarckiana*.—GATES²⁹ has discovered a manuscript in the Sturtevant collection of the library of the Missouri Botanical Garden "which proves that this plant was originally a species growing wild in Virginia, and that it was the first *Oenothera* introduced into European gardens, about 1614." In view of the fact that the origin of this important species has been in doubt, and that it has been claimed to have originated in cultivation, this discovery is noteworthy. The record referred to is in the form of a long marginal note in a copy of BAUHIN'S *Pinax*, by JOANNIS SNIPPENDALE, and is an accurate description of the plant. "The record is as complete and accurate as could be desired, to prove to one familiar with the characters of these forms the identity of the plants in question." The plant was described under BAUHIN'S name, *Lysimachia lutea corniculata*.—J. M. C.

Color inheritance in *Lychnis*.—SHULL³⁰ has discovered that the purple color in *L. dioica* is a compound character, produced by the interaction of three distinct and independent genes. The two types of purple color present in different individuals are a reddish purple, changed to blue by alkalis, and a bluish purple, changed to red by weak acids. The bluish or alkaline color is hypostatic to the reddish or acid color, which is the reverse of the condition found in all other

²⁷ MODILEWSKI, J., Zur Embryobildung von einigen Onagraceen. Ber. Deutsch. Bot. Gesell. 27:287-292. pl. 13. 1909.

²⁸ BOT. GAZETTE 44:353-374. pls. 24-27. 1907.

²⁹ GATES, R. R., The earliest description of *Oenothera Lamarckiana*. Science N.S. 31:425, 426. 1910.

³⁰ SHULL, GEORGE H., Color inheritance in *Lychnis dioica* L. Amer. Nat. 44:83-91. 1910.